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(71) Applicant and

(72) Inventor: **PARK, Hee-Sung [KR/KR]**; #330, Geumrak-dong, Hayang-eup, 712-902 Gyeongsan-si, Gyeongsangbuk-do (KR).

(74) Agent: **LEE, Duck-Rog**; YEiL Patent and Trademark Int'l, YEiL PAT Bldg. 669-17 Yorksam-dong, Kangnam-ku, 135-915 Seoul (KR).

(81) Designated States (national): **AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,**

**CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.**

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**Declaration under Rule 4.17:**

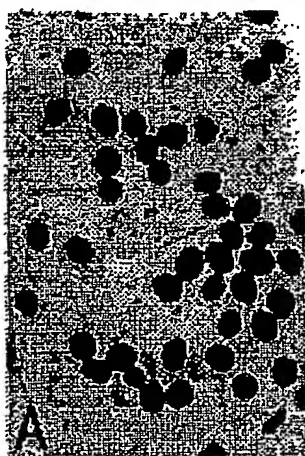
— *of inventorship (Rule 4.17(iv)) for US only*

**Published:**

— *with international search report*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: **METHOD FOR PRODUCING A RECOMBINANT PROTEIN USING POLLEN**



**[Note] Microscopic photograph of lily pollens on 0 hr(A), 8 hr(B), 16 hr(C) after culturing in pollen growth medium**

(57) Abstract: The invention relates to method for producing a recombinant protein using pollen. More specifically, the invention relates to method for producing a recombinant protein by introducing a recombinant gene into pollen using *Agrobacterium tumefaciens* via vacuum infiltration and then inducing pollen tube growth, and it makes possible to scale-up recombinant protein within short period of time and low production costs.

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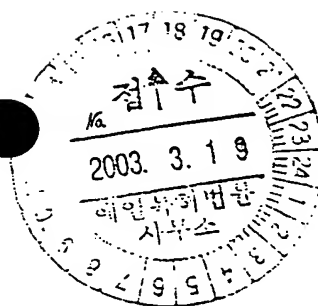


**WO 03/044050 A1**

# INTERNATIONAL COOPERATION TREATY PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)



Applicant's or agent's file reference <b>YL02012PCT</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/KR02/02154</b>	International filing date (day/month/year) <b>19 NOVEMBER 2002 (19.11.2002)</b>	(Earliest) Priority Date (day/month/year) <b>19 NOVEMBER 2001 (19.11.2001)</b>
Applicant  <b>PARK, Hee-Sung</b>		

This International search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

### 1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☒ contained in the international application in written form.

☒ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (See Box II).

4. With regard to the title.

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract.

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawing to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☐ None of the figures.

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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/KR02/02154

## A. CLASSIFICATION OF SUBJECT MATTER

**IPC7 C07K 14/415**

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7 C07K 14/415

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean Patents and applications for inventions since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CAPLUS, MEDLINE, DELPHION

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5066594 A (DNA Plant Technology) 19 NOVEMBER 1991 see the whole document	1 - 5
A	US 5929300 A (THE UNITED STATES OF AMERICA AS REPRESENTED BY THE SECRETARY OF AGRICULTURE) 27 JULY 1999 see the whole document	3, 4
A	SOWA et al. 'Biochemical changes during pollen germination measured in vivo by infrared spectroscopy' In: Plant Science, 1995, Vol.105, pp23-30 see the whole document	1 - 5
P, A	ROKOCZY-TROJANOWSKA 'Alternative methods of plant transformation - a short review' In: Cell Mol Biol Lett, 2002, Vol.7, No.3, pp849-858 see abstract	4

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

12 MARCH 2003 (12.03.2003)

Date of mailing of the international search report

13 MARCH 2003 (13.03.2003)

Name and mailing address of the ISA/KR



Korean Intellectual Property Office  
920 Dunsan-dong, Seo-gu, Daejeon 302-701,  
Republic of Korea

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Authorized officer

HAN, Hyun Sook

Telephone No. 82-42-481-5596



**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

PCT/KR02/02154

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5066594 A	19.11.91	NONE	
US 5929300 A	27.07.99	WO 9903326 A1	28.01.99
		EP 0996328 A1	03.05.00
		CN 1263434 T	16.08.00
		AU 8400598 A1	10.02.99